

CLAIMS

What is claimed is:

1. A rivet setting tool, comprising:

a pulling head including a hydraulic piston disposed within a housing, said piston coupled to a jaw, the jaw operable to engage a rivet mandrel upon activation of the pulling head, whereby continued travel of the hydraulic piston supplies force to effectively set the rivet;

a hydraulic pressure source connected to said housing by a hydraulic passage;

a pneumatic intensifier operably coupled to the hydraulic pressure source;

a hydraulic refill system coupled to the hydraulic pressure source configured to apply pressure to the hydraulic pressure source to cause the charging of the hydraulic passage.

2. The rivet setting tool according to Claim 1 wherein the hydraulic pressure source comprises a ram housing and the pneumatic intensifier defines an intensifier chamber, said pneumatic intensifier further comprising an air piston disposed within the intensifier chamber coupled to a rod such that movement of the air piston causes translation of the rod within the ram housing and thereby applying hydraulic pressure to the hydraulic passage.

3. The rivet setting tool of Claim 2 wherein the intensifier comprises a baffle, said baffle dividing the intensifier chamber into a hydraulic fluid supply and a first chamber.

4. The rivet setting tool of Claim 3 wherein the piston is disposed within the first chamber.

5. The rivet setting tool of Claim 4 wherein the rod is slidably received within an aperture defined by the baffle.

6. The rivet setting tool according to Claim 3 wherein the ram housing is disposed within the hydraulic fluid supply.

7. The rivet setting tool according to Claim 3 wherein the piston is configured to be movable from an actuation position to a refill position, wherein the rod is configured to be displaced so as to fluidly couple the ram housing to a fluid source when the piston is in the refill position.

8. The rivet setting tool according to Claim 7 further wherein the hydraulic refill system comprises an air supply configured to apply pressure to the fluid source so as to cause the recharging of the hydraulic passage with hydraulic fluid.

9. The rivet setting tool according to Claim 7 wherein the fluid source is the hydraulic fluid supply.

10. A rivet setting tool comprising a pulling head including a hydraulic piston disposed within a housing, said piston coupled to a jaw, the jaw operable to engage a rivet mandrel upon activation of the pulling head, whereby continued travel of the hydraulic piston supplies force to effectively set the head; and

an intensifier operably coupled to the hydraulic passage, the intensifier comprising a refill mechanism which when actuated fluidly couples a source of hydraulic fluid to the hydraulic passage and a means for applying hydraulic pressure to the hydraulic passage.

11. The rivet setting tool according to Claim 10 wherein the refill mechanism comprises a source of pneumatic pressure which is applied to the source of hydraulic fluid so as to cause hydraulic fluid to flow from the source of hydraulic fluid into the hydraulic passage.

12. The rivet setting tool according to Claim 10 wherein the means for applying hydraulic pressure to the hydraulic line comprises a ram housing fluidly coupled to the hydraulic passage, and a rod slidably disposed within the ram housing, said rod configured to move in response to air pressure applied into the intensifier.

13. The rivet setting tool according to Claim 12 wherein the intensifier defines an intensifier chamber, said intensifier chamber defining the source of hydraulic fluid.

14. The rivet setting tool according to Claim 13 wherein the intensifier further comprises a baffle which divides the intensifier chamber into the fluid source of hydraulic fluid and a first cavity.

15. The rivet setting tool according to Claim 14 wherein the means for applying hydraulic pressure is at least partially disposed within the first cavity.

16. A rivet setting tool, comprising:

a pulling head including a hydraulic piston disposed within a housing, said piston coupled to a jaw, the jaw operable to engage a rivet mandrel upon activation of the pulling head, whereby continued travel of the hydraulic piston supplies force to effectively set the rivet; and

a pneumatic intensifier defining an intensifier cavity having a hydraulic pressure source coupled to the hydraulic passage, said hydraulic pressure source comprising a piston disposed within the intensifier cavity, the piston being coupled to a rod which is slidably received within a ram housing, said ram housing being fluidly coupled to the hydraulic passage, said intensifier further having a baffle which divides the intensifier cavity into a hydraulic fluid source and a first cavity, said hydraulic fluid source being fluidly coupled to the ram housing when the rod is in a fill position and substantially fluidly sealed from the ram housing when the rod is in an actuation position within the ram housing, wherein said piston is disposed within the first cavity and wherein the application of air pressure to a first side of the piston causes hydraulic pressure to be applied to the hydraulic piston, and wherein application of the air pressure to a second side of the piston allows the rod to move from the actuation position to the fill position.

17. The rivet setting tool according to Claim 16 wherein the ram housing is disposed within the fluid source and wherein the ram housing comprises a check valve configured to fluidly couple the fluid source to the hydraulic passage when the rod is in the fill position.

18. The rivet setting tool according to Claim 17 wherein the ram housing slidably receives the rod so as to allow hydraulic fluid to flow past the rod.

19. The rivet setting tool according to Claim 16 further comprising a pneumatic controller operably coupled to the intensifier.

20. The rivet setting tool according to Claim 19 further comprising an electronic controller coupled to the pneumatic controller.

21. The rivet setting tool according to Claim 16 wherein the rod is movable from a filling position to an actuation position, said ram housing defines an interior cavity which is fluidly coupled to the hydraulic passage and the hydraulic fluid source when the rod is in the filling position.

22. The rivet setting tool according to Claim 17 wherein the aperture comprises a check valve.